



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/712,171	11/15/2000	Atsushi Tanaka	500.31108CC5	4470

20457 7590 12/17/2001

ANTONELLI TERRY STOUT AND KRAUS
SUITE 1800
1300 NORTH SEVENTEENTH STREET
ARLINGTON, VA 22209

EXAMINER

BADERMAN, SCOTT T

ART UNIT PAPER NUMBER

2184

DATE MAILED: 12/17/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/712,171

Applicant(s)

Tanaka et al.

Examiner

Scott T. Baderman

Art Unit

2184



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Nov 15, 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☒ All b) ☐ Some* c) ☐ None of:

- ☐ Certified copies of the priority documents have been received.
- ☒ Certified copies of the priority documents have been received in Application No. 07/859,850.
- ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2 20) ☐ Other:

Art Unit: 2184

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321© may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claim 1 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4 of **U.S. Patent No. 6,161,194**. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitation of the patented claim: "wherein the controller determines whether to *give preference to the processing of reconstructing data or to the processing of data read/write requests*," is an obvious rendition of the limitation in the application claim: "wherein the controller is operable in a first mode wherein the processing of reconstructing data has priority over the processing of data read/write requests, and a second mode wherein the processing of data read/write requests has priority over the processing of reconstructing data." Further, although the application claim does

Art Unit: 2184

not include the limitation: “perform the processing to which the preference is given based on a predetermined limit time,” as is included in the patent claim, this is obvious because the omission of an element and its function, such as that above, is an obvious expedient of the remaining elements because they perform the same function as before (See *In re Karlson*, 136 USPQ 184 (CCPA 1963)).

3. Claim 3 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 8 of U.S. Patent No. 6,161,194. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitation of the patented claim: “wherein the controller *performs the processing of reconstructing data in preference to the processing of data read/write requests*” is an obvious rendition of the limitation in the application claim: “wherein the controller is operable in a first mode wherein the processing of reconstructing data has priority over the processing of data read/write requests, and a second mode wherein the processing of data read/write requests has priority over the processing of reconstructing data.” It would have been suggested to a person skilled in the art that the limitation “in preference to” could mean that the processing of data read/write requests could also be in preference (priority) to the processing of reconstructing data.

4. Claims 4 and 6 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 11 of U.S. Patent No. 6,161,194. Although

Art Unit: 2184

the conflicting claims are not identical, they are not patentably distinct from each other because the limitation of the patented claim: “wherein the controller *gives a preference to the processing of data read/write requests*” is an obvious rendition of the limitation in the application claim: “wherein the controller is operable in a first mode wherein the processing of reconstructing data has priority over the processing of data read/write requests, and a second mode wherein the processing of data read/write requests has priority over the processing of reconstructing data.” It would have been suggested to a person skilled in the art that the limitation “gives a preference to” could mean that the processing of reconstructing data could also be given preference (priority) to. Further, the limitation “remaining time”, as in the patent claim, is interpreted as a “fixed time”.

5. Claim 5 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4 of **U.S. Patent No. 6,161,194**. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitation of the patented claim: “wherein the controller determines whether to *give preference to the processing of reconstructing data or to the processing of data read/write requests*,” is an obvious rendition of the limitation in the application claim: “wherein the controller is operable in a first mode wherein the processing of reconstructing data has priority over the processing of data read/write requests, and a second mode wherein the processing of data read/write requests has priority over the processing of reconstructing data.” Further, the limitation “predetermined limit time”, as in the patent claim, is interpreted as a “condition”.

Art Unit: 2184

6. Claims 7, 8, 9, 10, 11 and 12 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4 of U.S. **Patent No. 6,161,194**. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitation of the patented claim: “wherein the controller determines whether to *give preference to the processing of reconstructing data or to the processing of data read/write requests*, and *performs the processing to which the preference is given based on a predetermined limit time*” is an obvious rendition of the limitation in the application claim: “wherein the controller performs the processing of reconstructing data and the processing of data read/write requests based on a condition determined before the processing of reconstructing data begins. Further, specifically regarding claims 8, 10 and 12, the limitation “predetermined limit time”, as in the patent claim, is interpreted as a “condition”. Further, specifically regarding claims 9 and 11, the limitation “gives preference to...reconstructing data or to...data read/write requests” is an obvious rendition of the limitation in the application claim: “wherein the condition determines a priority of the processing of reconstructing data and a priority of the processing of data read/write requests.”

7. Claim 1 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4 of U.S. **Patent No. 5,941,993**. Although the conflicting claims are not identical, they are not patentably distinct from each other because although the application claim does not include the limitations “1) the divided data being data

Art Unit: 2184

divided into one of bit units, byte units and arbitrary units, 2) the monitoring means, 3) the setting a data reconstruction frequency at which the data reconstructing means is to reconstruct the divided data, 4) determining, for each failure which has occurred, a nature of the of the failure based on the output of the monitoring means, and 5) controlling the data reconstructing means to switch between a first operating mode and a second operating mode in accordance with the data reconstruction frequency and the nature of the failure”, as is included in the patent claim, it would have been obvious because the omission of an element and its function, such as that above, is an obvious expedient of the remaining elements because they perform the same function as before (See *In re Karlson*, 136 USPQ 184 (CCPA 1963)). Further, the limitation in the patent claim: “the host unit accessing the storage units”, is interpreted as “the processing of data read/write requests.”

8. Claim 3 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 5 of **U.S. Patent No. 5,941,993**. Although the conflicting claims are not identical, they are not patentably distinct from each other because although the application claim does not include the limitations “1) the divided data being data divided into one of bit units, byte units and arbitrary units, 2) the monitoring means, 3) the setting a data reconstruction frequency at which the data reconstructing means is to reconstruct the divided data, 4) determining, for each failure which has occurred, a nature of the of the failure based on the output of the monitoring means, and 5) controlling the data reconstructing means to

Art Unit: 2184

switch between a first operating mode and a second operating mode in accordance with the data reconstruction frequency and the nature of the failure”, as is included in the patent claim, it would have been obvious because the omission of an element and its function, such as that above, is an obvious expedient of the remaining elements because they perform the same function as before (See *In re Karlson*, 136 USPQ 184 (CCPA 1963)). Further, the limitation in the patent claim: “the host unit accessing the storage units”, is interpreted as “the processing of data read/write requests.” Further, the limitation in the patent claim: “controlling the data reconstructing means to switch between the first mode and the second mode in accordance with...an elapsed time”, is interpreted as “completing the data reconstruction within a fixed time.”

9. Claims 4 and 6 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 5 of U.S. **Patent No. 5,941,993**. Although the conflicting claims are not identical, they are not patentably distinct from each other because although the application claim does not include the limitations “1) the divided data being data divided into one of bit units, byte units and arbitrary units, 2) the monitoring means, 3) the setting a data reconstruction frequency at which the data reconstructing means is to reconstruct the divided data, 4) determining, for each failure which has occurred, a nature of the of the failure based on the output of the monitoring means, and 5) controlling the data reconstructing means to switch between a first operating mode and a second operating mode in accordance with the data reconstruction frequency and the nature of the failure”, as is included in the patent claim, it would

Art Unit: 2184

have been obvious because the omission of an element and its function, such as that above, is an obvious expedient of the remaining elements because they perform the same function as before (See *In re Karlson*, 136 USPQ 184 (CCPA 1963)). Further, the limitation in the patent claim: "the host unit accessing the storage units", is interpreted as "the processing of data read/write requests." Further, the limitation in the patent claim: "controlling the data reconstructing means to switch between the first mode and the second mode in accordance with...an elapsed time", is interpreted as "completing the data reconstruction within a fixed time which is determined before the processing of reconstructing data begins."

10. Claim 5 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4 of **U.S. Patent No. 5,941,993**. Although the conflicting claims are not identical, they are not patentably distinct from each other because although the application claim does not include the limitations "1) the divided data being data divided into one of bit units, byte units and arbitrary units, 2) the monitoring means, 3) the setting a data reconstruction frequency at which the data reconstructing means is to reconstruct the divided data, and 4) determining, for each failure which has occurred, a nature of the of the failure based on the output of the monitoring means, as is included in the patent claim, it would have been obvious because the omission of an element and its function, such as that above, is an obvious expedient of the remaining elements because they perform the same function as before (See *In re Karlson*, 136 USPQ 184 (CCPA 1963)). Further, the limitation in the patent claim: "the

Art Unit: 2184

host unit accessing the storage units”, is interpreted as “the processing of data read/write requests.” Further, the limitation in the patent claim: “controlling the data reconstructing means to switch between the first mode and the second mode in accordance with the data reconstruction frequency and the nature of the failure”, is interpreted as “determining whether to operate in the first mode or the second mode based on a condition determined before the processing of reconstructing data begins.”

11. Claims 7, 9 and 11 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4 of U.S. Patent No. 5,941,993. Although the conflicting claims are not identical, they are not patentably distinct from each other because although the application claim does not include the limitations “1) the divided data being data divided into one of bit units, byte units and arbitrary units, 2) the monitoring means, 3) the setting a data reconstruction frequency at which the data reconstructing means is to reconstruct the divided data, and 4) determining, for each failure which has occurred, a nature of the of the failure based on the output of the monitoring means, as is included in the patent claim, it would have been obvious because the omission of an element and its function, such as that above, is an obvious expedient of the remaining elements because they perform the same function as before (See *In re Karlson*, 136 USPQ 184 (CCPA 1963)). Further, the limitation in the patent claim: “the host unit accessing the storage units”, is interpreted as “the processing of data read/write requests.” Further, the limitation in the patent claim: “controlling the data reconstructing means to

Art Unit: 2184

switch between the first mode and the second mode in accordance with the data reconstruction frequency and the nature of the failure”, is interpreted as “the controller performing the processing of reconstructing data and the processing of data read/write requests based on a condition determined before the processing of reconstructing data begins.”

12. Claims 8, 10 and 12 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 5 of **U.S. Patent No. 5,941,993**. Although the conflicting claims are not identical, they are not patentably distinct from each other because although the application claim does not include the limitations “1) the divided data being data divided into one of bit units, byte units and arbitrary units, 2) the monitoring means, 3) the setting a data reconstruction frequency at which the data reconstructing means is to reconstruct the divided data, and 4) determining, for each failure which has occurred, a nature of the of the failure based on the output of the monitoring means, and 5) controlling the data reconstructing means to switch between a first operating mode and a second operating mode in accordance with the data reconstruction frequency and the nature of the failure”, as is included in the patent claim, it would have been obvious because the omission of an element and its function, such as that above, is an obvious expedient of the remaining elements because they perform the same function as before (See *In re Karlson*, 136 USPQ 184 (CCPA 1963)). Further, the limitation in the patent claim: “the host unit accessing the storage units”, is interpreted as “the processing of data read/write requests.” Further, the limitation in the patent claim: “controlling the data reconstructing means to

Art Unit: 2184

switch between the first mode and the second mode in accordance with...an elapsed time", is interpreted as "completing the data reconstruction within a fixed time which is determined before the processing of reconstructing data begins."

13. Claim 7 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 13 of U.S. Patent No. 6,000,039. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patent claim limitation: "if a number of storage units in which a fault has occurred is more/less than a predetermined number", is interpreted as the "condition" claimed in the application claim. Further, the patent claim limitation: "predetermined number", is interpreted as the being similar to the application claim limitation: "before the processing of reconstructing data begins."

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

Art Unit: 2184

15. Claims 1-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Stallmo (5,390,187).

As in claim 1, Stallmo discloses a data storage system connectable to a host unit (CPU) which issues data read/write requests to the data storage system, wherein the data storage system comprises a plurality of disc units and a controller connected to the disc unit, wherein a fault can occur in any of the disc units, wherein the disc units store data in a plurality of data groups and error correcting data corresponding to each of the data groups, wherein the controller performs processing of reconstructing data stored in any of the disc units in which a fault has occurred based on all other data belonging to any of the data groups to which the data to be reconstructed belongs and error correcting data corresponding to any of the data groups to which the data to be reconstructed belongs, and performs processing of data read/write requests from the host unit, and wherein the controller is operable in a first mode wherein the processing of reconstructing data has priority over the processing of data read/write requests, and a second mode wherein the processing of data read/write requests has priority over the processing of reconstructing data (i.e., during a reconstruction process, read/write operations are not active (reconstruction process has priority) unless the reconstruction process is interrupted to permit read/write operations (read/write operations have priority) (Figures 1 and 3-5, column 1: line 15 - column 4: line 62, column 8: line 4 - column 10: line 43)).

Art Unit: 2184

As in claim 2, Stallmo discloses that the controller determines whether to operate in the first mode or the second mode based on an urgency of data reconstruction (Abstract, column 8: lines 4-51).

As in claim 3, Stallmo discloses that the controller determines whether to operate in the first mode or the second mode in order to complete data reconstruction within a fixed time (i.e., the data in the requested data block is reconstructed “on the fly” (fixed time) so that the pending read operation can access the requested data block) (Abstract, column 8: lines 4-16).

As in claims 4, 5, 6, 7, 8, 9, 10, 11 and 12, Stallmo discloses a data storage system connectable to a host unit (CPU) which issues data read/write requests to the data storage system, wherein the data storage system comprises a plurality of disc units and a controller connected to the disc unit, wherein a fault can occur in any of the disc units, wherein the disc units store data in a plurality of data groups and error correcting data corresponding to each of the data groups, wherein the controller performs processing of reconstructing data stored in any of the disc units in which a fault has occurred based on all other data belonging to any of the data groups to which the data to be reconstructed belongs and error correcting data corresponding to any of the data groups to which the data to be reconstructed belongs, and performs processing of data read/write requests from the host unit, and wherein the controller is operable in a first mode wherein the processing of reconstructing data has priority over the processing of data read/write requests, and

Art Unit: 2184

a second mode wherein the processing of data read/write requests has priority over the processing of reconstructing data (i.e., during a reconstruction process, read/write operations are not active (reconstruction process has priority) unless the reconstruction process is interrupted to permit read/write operations (read/write operations have priority) (Figures 1 and 3-5, column 1: line 15 - column 4: line 62, column 8: line 4 - column 10: line 43). Stallmo also discloses that the controller determines whether to operate in the first mode or the second mode in order to complete data reconstruction within a fixed time (i.e., the data in the requested data block is reconstructed "on the fly" (fixed time) *after a request (i.e., a condition) is made by the read operation* so that the pending read operation can access the requested data block) (Abstract, column 8: lines 4-16).

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

See Form PTO-892.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott T. Baderman whose telephone number is (703) 305-4644.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Art Unit: 2184

Washington, D.C. 20231

or faxed to:

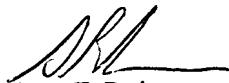
(703) 746-7239, (for formal communications intended for entry)

Or:

(703) 746-7240 (for informal or draft communications, please label

“PROPOSED” or “DRAFT”)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA,
Sixth Floor (Receptionist).



Scott T. Baderman
Patent Examiner
Art Unit 2184

STB

December 12, 2001